

Finding Absolute Maximums and Minimums - Homework

Find the absolute maximums and minimums of f on the given closed interval and state where these values occur.

1. $f(x) = 4x^2 - 4x + 1$ $[0, 2]$

2. $f(x) = 2x^3 - 3x^2 - 12x - 1$ $[-2, 3]$

3. $f(x) = \frac{x}{x^2 + 2}$ $[-1, 4]$

4. $f(x) = (x^2 - 2)^{\frac{2}{3}}$ $[-2, 3]$

5. $f(x) = x^{\frac{2}{3}}(20 - x)$ $[-1, 20]$

6. $f(x) = \sin x - \cos x$ $[0, \pi]$

7. $f(x) = x - \tan x$ $\left[-\frac{\pi}{4}, \frac{\pi}{4}\right]$

8. $f(x) = |6 - 4x|$ $[-3, 3]$

9. What is the smallest possible slope to
 $y = x^3 - 3x^2 + 5x - 1$

10. If a particle moves along a straight line according to
 $s(t) = t^4 - 4t^3 + 6t^2 - 20$, find

a) the maximum & minimum velocity on $0 \leq t \leq 3$.

b) the maximum & minimum acceleration on $0 \leq t \leq 3$